Bold and underline = new language since preliminary adoption
~~Bold, strikeout and underline~~ = new language being stricken since preliminarily adoption
~~Strikeout and underline~~ = existing language that is being stricken since preliminary adoption

TITLE 326 AIR POLLUTION CONTROL BOARD

PROPOSED RULE AS PRELIMINARILY ADOPTED WITH IDEM'S SUGGESTED CHANGES INCORPORATED

LSA Document #01-251

DIGEST

Amends 326 IAC 8-1-2 to provide compliance methods applicable to dip or flow operations at miscellaneous metal coating operations regulated at 326 IAC 8-2-9. Effective 30 days after filing with the secretary of state.

HISTORY

First Notice of Comment Period: August 1, 2001, Indiana Register (24 IR 3826).
Second Notice of Comment Period and Notice of First Hearing: November 1, 2001, Indiana Register (25 IR 556).
Date of First Hearing: February 6, 2002.
Proposed Rule and Notice of Public Hearing: June l, 2002, Indiana Register (25 IR 2753).
Date of Second Hearing: August 7, 2002.

326 IAC 8-1-2

SECTION 1. 326 IAC 8-1-2 IS AMENDED TO READ AS FOLLOWS:

326 IAC 8-1-2 Compliance methods
Authority: IC 13-14-8
Affected: IC 13-17

Sec. 2. (a) The emission limitations specified in this article shall be achieved through one (1) or any combination of the following:

(1) Carbon adsorption.

(2) Thermal or catalytic incineration. The owner or operator of a source using a natural gas

afterburner incineration method may petition the commissioner for permission to not operate the natural gas afterburner during the months of November, December, January, February, and March. The commissioner may allow such exemption if the owner or operator adequately demonstrates that the operation of the natural gas afterburner is not required for control of toxic substances or odor.

(3) Higher solids (low solvent) ~~coating~~ **coatings, including powder, ultraviolet and electron beam coatings**.

(4) Water borne coatings.

(5) Equivalent emission limitations based on an actual measured transfer efficiency ~~higher~~ **greater** than the specified baseline transfer efficiency **as follows:**

(A) This subdivision is applicable only to **the following:**

(i) 326 IAC 8-2-2(b)(2), automobiles and light duty truck assembly **operations**.

(ii) 326 IAC 8-2-6, metal furniture coating **operations ; and.**

(iii) 326 IAC 8-2-7, large appliance coating **operations**.

(iv) 326 IAC 8-2-9, miscellaneous metal coating operations.

(B) For metal furniture coating operations, ~~or~~ large appliance coating operations, or miscellaneous metal coating operations, this subdivision and the equivalent emission limits it contains may not be used to determine compliance unless a test method for determining actual measured transfer efficiency has been specified by U.S. EPA or submitted to U.S. EPA and approved as a SIP revision.

(C) The equivalent emission limitations in units of kilograms of volatile organic compounds (VOC) per liter solids deposited (pounds of VOC per gallon solids deposited), baseline transfer efficiencies, and baseline volume percent solids content of the coating are specified below:

Category	Equivalent Emission Limit	Baseline Transfer Efficiency	Baseline **Volume** Percent Solids
Automobiles and light duty trucks assembly (topcoat)	1.83 (15.1)	30	62.0
Metal furniture	1.01 (8.4)	60	59.2
Large appliances	0.91 (7.4)	60	62.0
Miscellaneous Metal Coating Category			
Clear coatings	**2.08 (17.3)**	**60**	**41.6**
Air dried up to 90EC	**1.34 (11.2)**	**60**	**52.4**

Extreme performance coatings	**1.34 (11.2)**	**60**	**52.4**
All other coatings and coating systems	**1.01 (8.4)**	**60**	**59.2**

(D) Compliance with an equivalent emission limit shall be determined as follows:

(i) For automobile and light duty topcoating operations, ~~compliance with the equivalent emission limit shall be determined using~~**: use** procedures found in "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Topcoat Operations"; EPA-450/3-88-018; December 1988*. ~~or~~

~~(B) another procedure approved by the commissioner.~~ **(ii)** For metal furniture **coating operations,** ~~or~~ large appliance coating operations**, or miscellaneous metal coating operations** ~~compliance with the equivalent emission limit shall be determined using the procedures approved by the commissioner. Unless the method for determining actual measured transfer efficiency has been approved or specified by the United States Environmental Protection Agency (U.S. EPA), the equivalent emission limitation shall be submitted to the U.S. EPA as a state implementation plan (SIP) revision.~~ **use the following equation:**

$$E = \frac{L}{[(1 - (L/D)) \times (T)]}$$

Where: **E = Actual emissions in pounds of VOC per gallon of coating solids deposited.**

L = Actual VOC content in pounds of VOC per gallon of coating, as applied, excluding water and nonphotochemically reactive hydrocarbons.

D = Actual density of the VOC in the coating in pounds per gallon of VOC.

T = Actual measured transfer efficiency.

(6) The use of nonphotochemically reactive hydrocarbons as defined in 326 IAC 1-2-48.

(7) A daily volume-weighted average of all coatings applied in a coating line or printing line subject to the requirements in 326 IAC 8-2 or 326 IAC 8-5-5. Records of daily usage of gallons solids coating and VOC content of each coating, ~~or~~ ink, **and** solvent shall be maintained

and made available upon request. Also, records of daily emissions in pounds VOC shall be maintained and made available upon request. If daily records sufficient to determine an accurate daily weighted average are not available, each coating, ~~or~~ ink**, and** solvent shall meet the requirements of the applicable section.

(8) The use of an emission control device specifically allowed under provisions of any rule in this article to meet the emission limitations specified in the rule.

(9) ~~Equivalent emissions limitations based on an actual measured transfer efficiency higher~~ **greater** ~~than the specified baseline transfer efficiency.~~

~~(A)~~ This subdivision is applicable only to **dip coating or flow coating operations at** miscellaneous metal coating operations subject to 326 IAC 8-2-9.

~~**(B) This subdivision and the equivalent emission limits it contains may not be used to determine compliance unless a test method for determining actual measured transfer efficiency has been specified by U.S. EPA or submitted to U.S. EPA and approved as a SIP revision.**~~

~~(A)~~ **(C)** ~~Equivalent emission limits in units of kilograms of VOC per liter solids deposited (pounds of VOC per gallon solids deposited), baseline transfer efficiencies, and baseline volume percent solids content of coatings are as follows:~~

~~Miscellaneous Metal Coating Category~~	~~Equivalent Emission Limit kg/l (lbs/gal) of Solids Deposited~~	~~Baseline Transfer Efficiency~~	~~Baseline Volume Percent Solids~~
~~Clear coatings~~	~~2.08 (17.3)~~	~~60~~	~~41.6~~
~~Air dried up to 90EC~~	~~1.34 (11.2)~~	~~60~~	~~52.4~~
~~Extreme performance coatings~~	~~1.34 (11.2)~~	~~60~~	~~52.4~~
~~All other coatings and coating systems~~	~~1.01 (8.4)~~	~~60~~	~~59.2~~

~~(B)~~ **(D)** ~~Compliance with the equivalent emission limit shall be determined according to the following equation:~~

~~$$E = (L)/[(1-(L/D)) \times (T)]$$~~

~~Where:~~ ~~E~~ = ~~Equivalent emission limit~~ **Actual emissions** ~~in pounds of VOC per gallon of coating solids deposited.~~

~~L~~ = ~~Actual VOC content in pounds of VOC per gallon of coating, as applied~~**, excluding water and nonphotochemically reactive hydrocarbons**~~.~~

~~D~~ = ~~Actual density of~~ **the** ~~VOC in~~ **the** ~~coating in pounds per gallon of VOC.~~

~~T~~ = ~~Actual measured transfer efficiency.~~

~~Unless the method for determining actual measured transfer efficiency has been approved or specified by the U.S. EPA, the equivalent emission limitation shall be submitted to the U.S. EPA as an a SIP revision.~~

(A) For dip coating or flow coating operations only. The equivalent emission limit in kilograms VOC/liter (lb/gallon) of coating solids is as follows:

Miscellaneous Metal Coating Category	Limit in kilograms VOC/liter (lb/gallon) of coating less water	Equivalent Emission Limit in kilograms VOC/liter (lb/gallon) of coating solids
Clear coatings	0.52 (4.3)	1.22 (10.2)
Air dried or forced warm air dried at temperatures up to ninety (90) degrees Celsius (one hundred ninety-four(194) degrees Fahrenheit)	0.42 (3.5)	0.80 (6.7)
Extreme performance coatings	0.42 (3.5)	0.80 (6.7)
All other coatings and coating application systems	0.36 (3.0)	0.61 (5.1)

(B) Compliance with the equivalent emission limit shall be determined by doing the following:

(i) Calculate the VOC content of a dip coating or flow coating, expressed in units of weight of VOC per volume of coating solids, on a thirty (30) day rolling average basis using the following equation:

$$VOC_A = \left(\sum (W_{oi} \times D_{ci} \times Q_i) + \sum (W_{oJ} \times D_{dJ} \times Q_J) \right) / \left(\sum (V_{ni} \times Q_i) \right)$$

Where:

VOC_A = **The as-applied, VOC content in pound VOC per gallon (lb VOC/gal) of coating solids for a dip coating or flow coating, calculated on a thirty (30) day rolling average basis.**

W_{oi} = Percent VOC by weight of each as supplied coating (i) added to the dip coating or flow coating process, expressed as a decimal fraction (that is 55% = 0.55).

D_{ci} = Density of each as supplied coating (i) added to the dip coating or flow coating process, in pounds per gallon.

Q_i = Quantity of each as supplied coating (i) added to the dip coating or flow coating process, in gallons.

V_{ni} = Percent solids by volume of each as supplied coating (i) added to the dip coating or flow coating process, expressed as a decimal fraction.

W_{oJ} = Percent VOC by weight of each thinner (J) added to the dip coating or flow coating process, expressed as a decimal fraction.

D_{dJ} = Density of each thinner (J) added to the dip coating or flow coating process, in pounds per gallon.

Q_J = Quantity of each thinner (J) added to the dip coating or flow coating process, in gallons.

(ii) Maintain the following records on a daily basis for each VOC-containing coating, solvent or other material added to the tank:

(AA) The following parameters for each coating, thinner or other material as supplied:

(aa) The coating, thinner, or other material identification number.

(bb) The volume used.

(cc) The mix ratio.

(dd) The density or specific gravity.

(ee) The weight percent of total volatiles, water, solids and exempt solvents.

(ff) The volume percent of solids.

(BB) The VOC content of each coating and thinner as supplied.

(CC) The VOC content of each as applied coating.

(iii) Maintain all records necessary to confirm compliance:

(AA) On-site for the most recent three (3) year period.

(BB) Make reasonably accessible for an additional two (2) years.

~~(10) For dip~~ **coating** ~~or flow coating operations only, miscellaneous metal coating operations subject to the requirements of 326 IAC 8-2-9 may determine compliance by~~ **and** ~~using one (1) of the following methods:~~

~~(A) A monthly volume-weighted average of all coatings applied in a coating tank, flow~~

coater, or flow coating line. For each coating, thinner, or solvent, the following records shall be maintained:

(i) Monthly usage.

(ii) VOC content as supplied by the manufacturer for coatings, thinners, and solvents.

(iii) Monthly emissions in pounds of VOC.

(iv) Calculated monthly volume-weighted average VOC content of the coating as applied.

If monthly records sufficient to determine an accurate monthly weighted average are not available, then a compliance method specified in this subsection or subsection (b) must be used to confirm compliance. Records necessary for determining compliance shall be maintained at the source for a minimum of three (3) years and shall be made available upon request.

(B) Using coatings in compliance with 326 IAC 8-2-9(d), in the tank or reservoir, and maintaining a viscosity of the coatings that is no less than the viscosity of the initial coating. During the first year of operation using this compliance method the source must demonstrate, by means of viscosity readings and a minimum of two (2) U.S. EPA approved VOC content tests, performed at a minimum four (4) month interval, that the VOC content of the coating as applied does not exceed the VOC content stipulated in 326 IAC 8-2-9(d). Such testing must comply with the provisions of 326 IAC 3-2.1 *[326 IAC 3-2.1 was repealed filed Jan 30, 1998, 4:00 p.m.: 21 IR 2079.]*. After the first year of operation and providing that the VOC content tests have confirmed compliance using viscosity readings, the source may use viscosity readings to confirm compliance. Sources may monitor the viscosity of the coating with a viscosity meter or an equivalent method approved by the department. The viscosity shall be measured weekly or after each time solvent is added to the tank or reservoir, whichever is more frequent. The viscosity measurement must be corrected for the temperature of the coating in the tank or reservoir and the solvent density of the thinner. Records of viscosity and temperature, sufficient to confirm compliance, shall be maintained at the source for a minimum of three (3) years and shall be made available upon request. Equipment necessary to demonstrate compliance based on viscosity must be properly maintained and available at all reasonable times. If viscosity is not monitored, then another compliance method specified in this subsection must be used to confirm compliance. For determining compliance based on this clause, an actual test, using approved methods such as a U.S. EPA Method 24 test and sampling procedures, of the VOC content of the coating in the tank or reservoir shall take precedence over viscosity. **coatings that contain less VOC than the VOC content limits in 326 IAC 8-2-9 may determine compliance as-applied based on the interval between**

~~VOC-containing solvent additions using the following equation:~~

$$E_{ave} = \frac{VOC_a + VOC_s}{G_a + G_s}$$

~~Where:~~

~~E_{ave} = Volume-weighted average VOC emissions from VOC-containing coatings applied by the dip tank or flow coater for a given interval.~~

~~VOC_a = Total weight of VOC (in pounds) from all VOC-containing coatings added to the tank or the reservoir during the interval between VOC-containing solvent additions.~~

~~VOC_s = Total weight of VOC (in pounds) contained in the VOC-containing solvent added to the tank or the reservoir that started the averaging period.~~

~~G_a = Total gallons of VOC-containing coating, minus water and nonphotochemically reactive hydrocarbons added to the tank or the reservoir during the interval between VOC-containing solvent additions.~~

~~G_s = Total gallons of VOC-containing solvent, minus water and nonphotochemically reactive hydrocarbons added to the tank or the reservoir that started the averaging period.~~

~~(A) Each interval shall start the calendar day any VOC-containing solvent is added to the tank or reservoir. The last day of the interval is the calendar day preceding the next VOC-containing solvent addition, not to exceed thirty (30) days. All of the additions of VOC-containing solvents and coatings to the tank that occur during the first calendar day and the additions of VOC-containing coatings to the tank each subsequent day of the interval shall be included in calculating the volume-weighted average for the interval. A new averaging interval must begin each day that a VOC-containing solvent is added to the tank or reservoir.~~

~~(B) If the interval between VOC-containing solvent additions exceeds thirty (30) days, then the daily volume-weighted average VOC emissions (E_{ave}) shall be determined using an averaging time of thirty (30) days.~~

~~(C) For compliance with this subdivision, the following records shall be maintained for each VOC-containing coating and solvent:~~

~~(i) The calculated volume-weighted average VOC emissions (E_{ave}) for every interval.~~

~~(ii) Actual VOC content of the coatings and solvents determined by the applicable testing procedures specified in section 4 of this rule or as supplied by the manufacturer.~~

~~(iii) Records of the amounts of VOC-containing coatings and solvents added to the tank or the reservoir, including the dates of the additions.~~

~~Records sufficient to confirm compliance, shall be maintained at the source for a minimum of three (3) years and shall be made available upon request.~~

(b) VOC emissions shall be limited to no greater than the equivalent emissions, expressed as pounds of VOC per gallon of coating solids, allowed under the applicable emission limitation contained in this article for any surface coating operation using the compliance methods contained in subsection (a) or section 5 of this rule.

(1) Equivalency shall be determined by the following equation:

$$E = \frac{L}{1 - \frac{L}{D}}$$

Where **E = Equivalent emission limit in pounds of VOC per gallon of coating solids, as applied.**

L = Applicable emission limit from this article in pounds of VOC per gallon of coating.

D = **Baseline solvent** density of VOC in **the** coating ~~in~~ **and shall be equal to seven and thirty-six hundredths (7.36)** pounds **of VOC** per gallon of ~~VOC.~~ **solvent**.

~~E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied.~~

~~A solvent density of seven and thirty-six hundredths (7.36) pounds of VOC per gallon of coating shall be used to determine equivalent pounds of VOC per gallon of solids for the applicable emission limit contained in this article. Actual solvent density shall be used to determine compliance of surface coating operations using the compliance methods contained in subsection (a) or section 5 of this rule.~~

(2) Compliance with an equivalent emission limit established in subdivision (1) shall be determined according to the following equation:

$$E_a = \frac{L_a}{1 - \frac{L_a}{D_a}}$$

Where: E_a = Actual emissions in pounds of VOC per gallon of coating solids, as applied.
L_a = Actual VOC content in pounds of VOC per gallon of coating, as applied.
D_a = Actual density of the VOC in the coating, as applied, in pounds per gallon of VOC.

(c) The overall efficiency of any capture system and control device determined by the test methods and procedures specified in section 4 of this rule shall be no less than the equivalent overall efficiency which shall be calculated by the following equation:

$$O = \frac{V \& E}{V} \times 100$$

Where: V = The actual VOC content of the coating or, if multiple coatings are used, the daily weighted average VOC content of all coatings, as applied to the subject coating line as determined by the applicable test methods and procedures specified in section 4 of this rule in units of pounds of VOC per gallon of coating solids as applied.
E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied.
O = Equivalent overall efficiency of the capture system and control device as a percentage.

(d) Any **other** equivalent method ~~which is allowed to be used to determine or achieve compliance with any provision of this article shall~~ **must** be submitted ~~to the U.S. EPA~~ **and approved** as a SIP revision **by U.S. EPA before it can be used to determine or achieve compliance with any provision of this article.**

*This document ~~has been~~ **is** incorporated by reference~~.~~ ~~and is~~ **and may be obtained from the Library Services Office (MD-35), United States Environmental Protection Agency, Office of Air Quality, Planning and Standards, Research Triangle Park, NC 27711 or** ~~**Copies are**~~ **is** available **for review and copying** at the Indiana Department of Environmental Management, Office of Air ~~Management~~ **Quality, Indiana Government Center-North, Tenth Floor, 100 North Senate Avenue,** ~~**Tenth Floor,**~~ **Indianapolis, Indiana 46204**. *(Air Pollution Control Board; 326 IAC 8-1-2; filed Mar 10, 1988, 1:20 p.m.: 11 IR 2527; errata, 11 IR 2632; filed Sep 23, 1988, 11:59 a.m.: 12 IR 256; filed Jan 16, 1990, 4:00 p.m.: 13 IR 1016; Filed Apr 18, 1990, 4:55 p.m.: 13 IR 1676; filed May 9, 1990, 5:00 p.m.: 13 IR 1845; filed May 6, 1991,4:45 p.m.: 14 IR 1714; filed Aug 21, 1996, 2:00 p.m.: 20 IR 6)*